

- PLAN SHEET INDEX:
- SHEET 1 : COVER
 - SHEET 2 : ROAD SECTIONS AND DETAILS
 - SHEET 3 : CAMP SITES 1 AND 2
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 - SHEET 12 : FEE AREA AND GROUP USE BUILDING
 - CRIB STEP PLAN SHEET
 - ROCK BAR REMOVAL PLAN SHEET



- LEGEND
- MAJOR CONTOUR (5 FOOT INTERVAL)
 - MINOR CONTOUR (1 FOOT INTERVAL)
 - ACCESS ROAD
 - ACCESS ROAD CENTERLINE
 - EXISTING EDGE OF GRAVEL SURFACE
 - EXISTING FENCE
 - WATERLINE (EST. LAKE ELEVATION)
 - NEW CULVERT
 - CONCRETE SURFACE
 - BUILDING
 - LATRINE
 - FIRE RING
 - BARRIER
 - CAMP SITE
 - PICNIC TABLE PAD
 - TYPICAL SECTION B: NEW CAMPSITE ROADS AND PARKING AREAS
 - STRAW WATTLE

J. Kevin McDonnell	4.2013				
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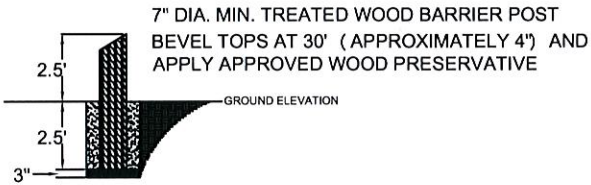
Bearpaw Lake FAS Road Improvement
near Havre, MT



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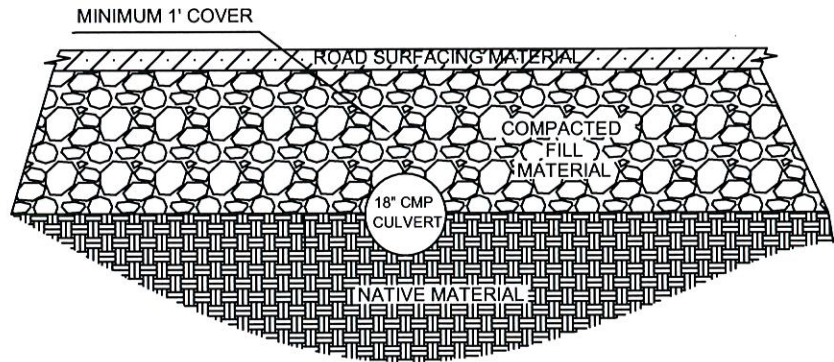
Notes:

- 1) FWP Engineer will stake radius points, parking corners, barrier locations and provide reference elevations, where necessary.
- 2) Refer to Typical Section A : Grade and Gravel Existing Roads and Parking Areas unless otherwise designated.
- 3) All material stripped for new road and parking construction shall be removed to local on site areas requiring seeding, leveled to match natural grades, and seeded.
- 4) All disturbed areas shall be seeded. See Section 02936
- 5) Transitions from new graveled areas to vegetated areas shall be uniform and follow the alignment of the roads and parking layouts.

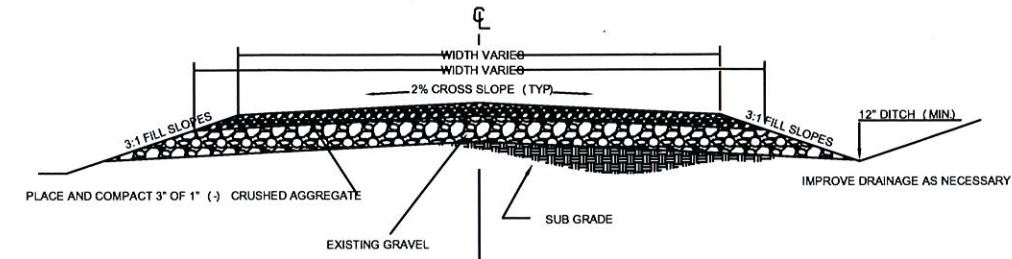


- INSTALLATION
- 1. PLACE 3" OF CRUSHED GRAVEL INTO BOTTOM OF POST HOLE.
 - 2. SET POST 2.5' INTO GROUND FROM TOP OF GROUND ELEVATION
 - 3. MOISTURE CONDITION FILL MATERIAL AND COMPACT.

BARRIER POST
NOT TO SCALE

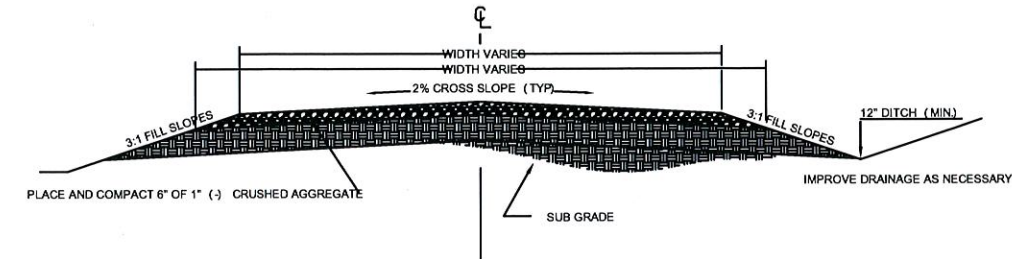


CULVERT SECTION
NOT TO SCALE



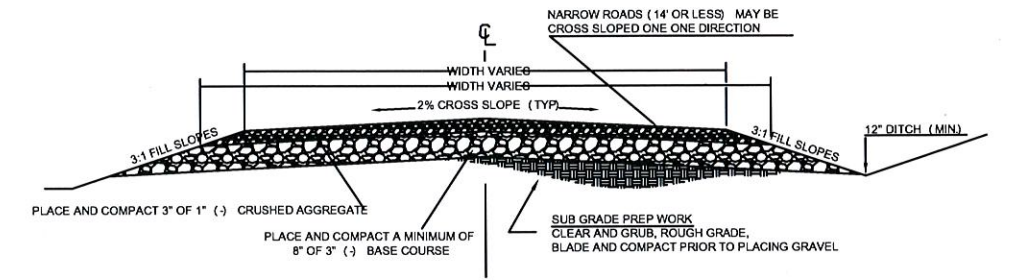
TYPICAL SECTION A : GRADE AND GRAVEL EXISTING ROADS AND PARKING AREAS
NOT TO SCALE

- NOTES:
- 1. BLADE THE EXISTING ROAD MATERIAL TO DEPTH SUFFICIENT TO REMOVE POTHOLES, WASHBOARDS, RESTORE CROSS SLOPES AND ESTABLISH UNIFORM GRADES.
 - 2. IMPROVE THE DRAINAGE DITCHES ADJACENT TO ROADS AS NECESSARY.
 - 4. COMPACT EXISTING GRAVEL SURFACE PRIOR TO PLACING NEW CRUSHED GRAVEL SURFACE.
 - 4. PLACE AND COMPACT 3" OF 1" (-) CRUSHED TOP SURFACING
 - 5. NARROW ROADS (LESS THAN 14') MAY BE CROSS SLOPED IN ONE DIRECTION.



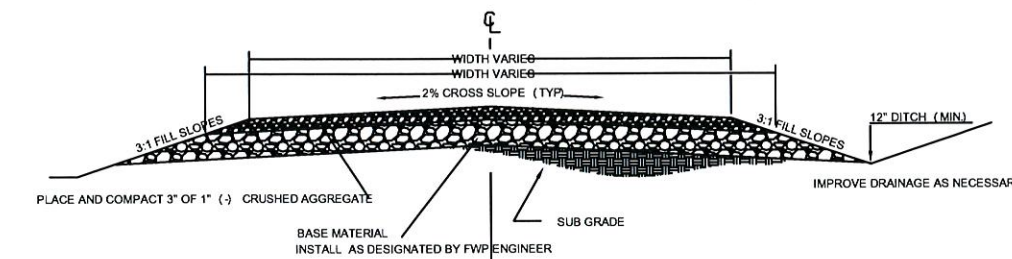
TYPICAL SECTION B : NEW CAMPSITE ROADS AND PARKING AREAS
NOT TO SCALE

- NOTES:
- 1. ROUGH GRADE NEW ROAD OR PARKING AREA
 - 2. IMPROVE THE DRAINAGE ADJACENT TO GRAVEL SURFACES AS NECESSARY.
 - 4. COMPACT SUB-GRADE PRIOR TO PLACING NEW CRUSHED GRAVEL SURFACE.
 - 4. PLACE AND COMPACT 6" OF 1" (-) CRUSHED TOP SURFACING
 - 5. NARROW ROADS (LESS THAN 14') MAY BE CROSS SLOPED IN ONE DIRECTION .



TYPICAL SECTION C : NEW ROAD
NOT TO SCALE

- NOTES:
- 1. BLADE THE EXISTING ROAD MATERIAL TO DEPTH SUFFICIENT TO REMOVE POTHOLES, WASHBOARDS, RESTORE CROSS SLOPES AND ESTABLISH UNIFORM GRADES.
 - 3. PLACE 8" OF 3" (-) PIT RUN MATERIAL IN AREAS DESIGNATED BY FWP ENGINEER OF EROSION OR WEAR WHICH HAVE EXPOSED THE SUBGRADE. THE ESTIMATED GRAVEL QUANTITY FOR REPAIR IS INCLUDED IN OVERALL QUANTITY
 - 2. IMPROVE THE DRAINAGE DITCHES ADJACENT TO ROADS AS NECESSARY.
 - 4. GRADE AND COMPACT EXISTING GRAVEL SURFACE PRIOR TO PLACING NEW CRUSHED GRAVEL SURFACE.
 - 5. NARROW ROADS (LESS THAN 14') MAY BE CROSS SLOPED IN ONE DIRECTION.



TYPICAL SECTION D : ROAD REPAIR
NOT TO SCALE

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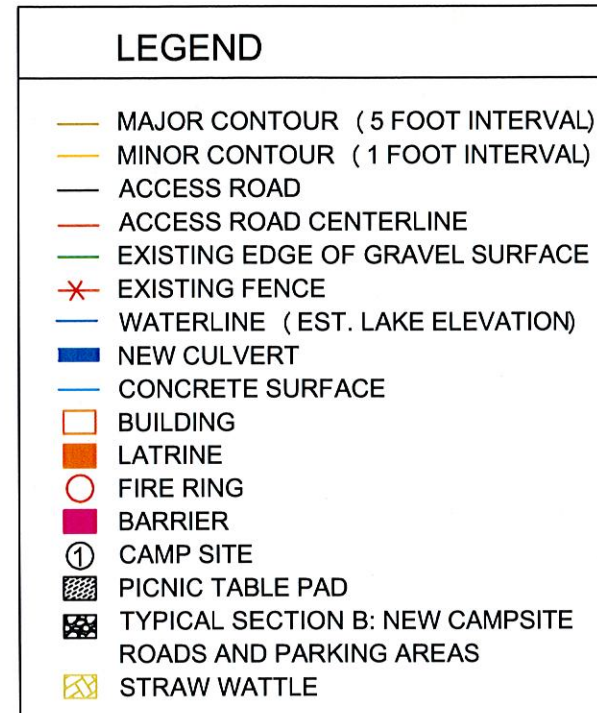


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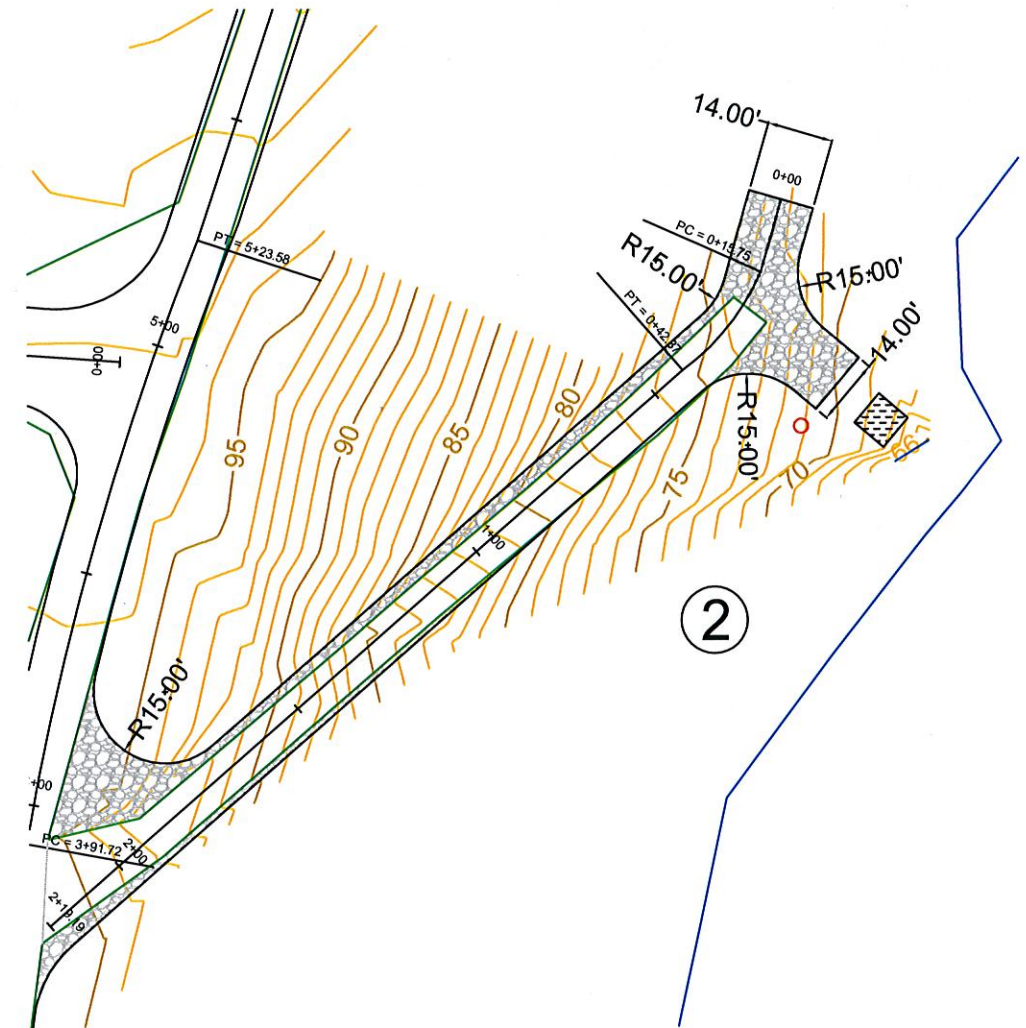
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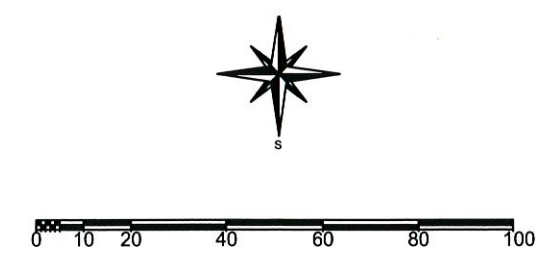
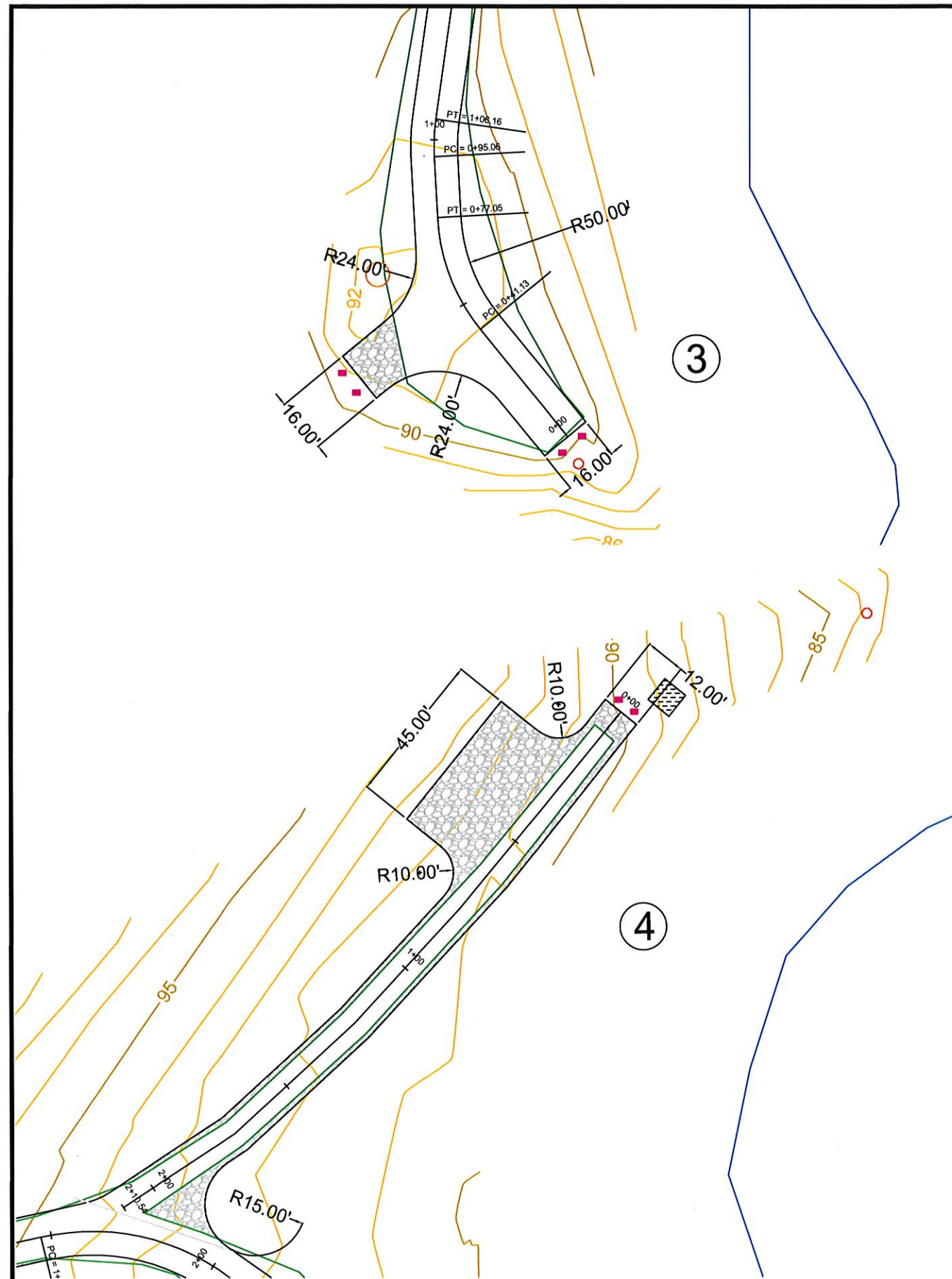


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5) INSTALL BARRIER POSTS AT DESIGNATED LOCATIONS.

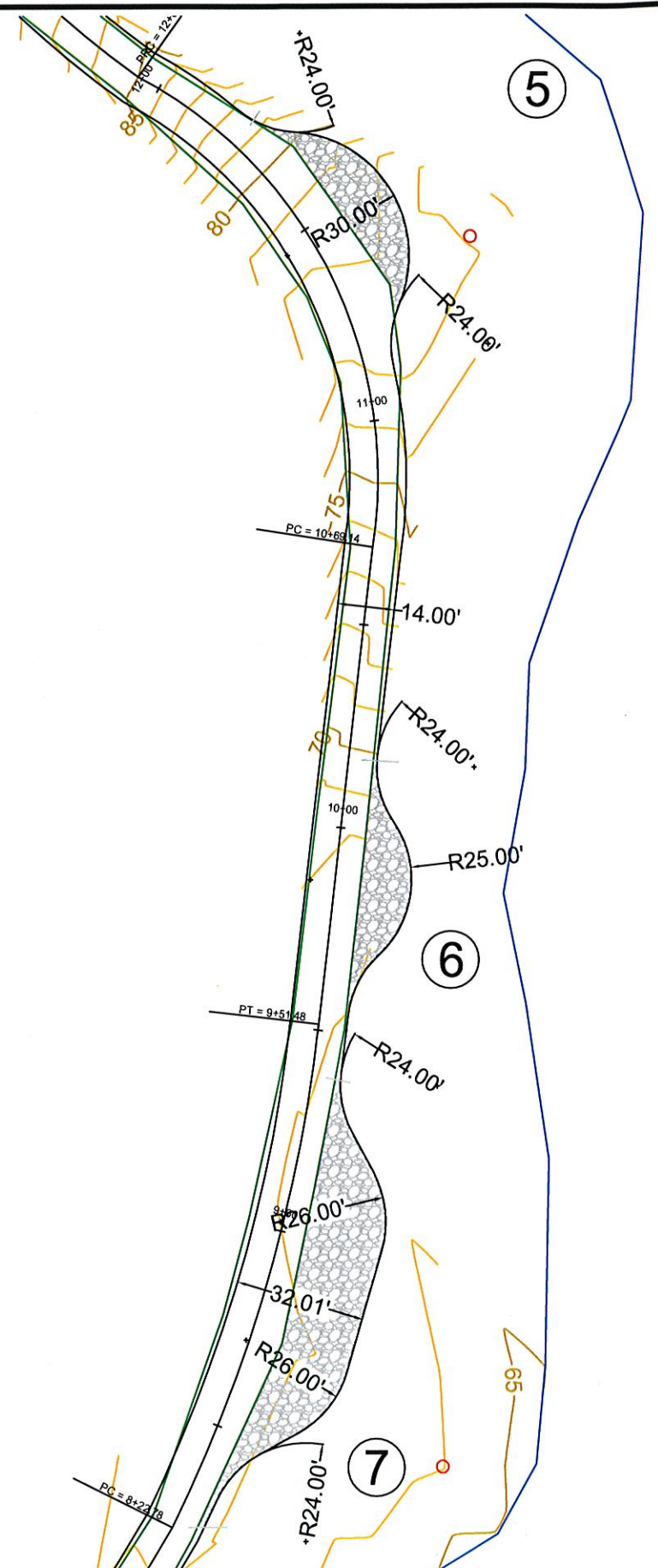




LEGEND	
	MAJOR CONTOUR (5 FOOT INTERVAL)
	MINOR CONTOUR (1 FOOT INTERVAL)
	ACCESS ROAD
	ACCESS ROAD CENTERLINE
	EXISTING EDGE OF GRAVEL SURFACE
	EXISTING FENCE
	WATERLINE (EST. LAKE ELEVATION)
	NEW CULVERT
	CONCRETE SURFACE
	BUILDING
	LATRINE
	FIRE RING
	BARRIER
	CAMP SITE
	PICNIC TABLE PAD
	TYPICAL SECTION B: NEW CAMPSITE ROADS AND PARKING AREAS
	STRAW WATTLE

GENERAL NOTES:

- 1) REFER TO TYPICAL SECTION A: GRADE AND GRAVEL EXISTING ROADS AND PARKING AREAS ON ALL ROAD AND PARKING SURFACES UNLESS OTHERWISE DESIGNATED.
- 1) CLEAR AND REMOVE TOP SOIL FOR NEW ROAD AND PARKING AREAS. STOCKPILE TOP SOIL FOR LATER USE TO SEED DISTURBED AREAS.
- 2) TRANSITIONS FROM NEW GRAVELED AREAS TO VEGETATED AREAS SHALL UNIFORM AND CLEARLY FOLLOW THE ALIGNMENT OF THE ROADS AND PARKING LAYOUTS.
- 3) ALL DISTURBED AREAS SHALL BE SEEDED. SEE SECTION 02936. EXCESS TOP SOIL SHALL BE USED TO REVEGETATE IMPACTED AREAS, LEVELED TO MATCH NATURAL GRADES AND SEEDED.
- 4) PICNIC TABLE PADS SHALL BE CONSTRUCTED OF (4) 4" X 8' TREATED LANDSCAPING TIMBERS, PLACED IN A SQUARE, AND THE INTERIOR FILLED WITH 4" OF CRUSHED TOP SURFACING GRAVEL. EACH TIMBER SHALL BE PINNED DOWN WITH (3) 18" #4 REBAR. LEVEL PICNIC TABLE PAD AREA SUB-GRADE PRIOR TO INSTALLATION. ADDITIONAL TIMBERS MAY BE REQUIRED ON STEEPER SLOPES TO LEVEL THE PICNIC TABLE PAD.
- 5) INSTALL BARRIER POSTS AT DESIGNATED LOCATIONS.



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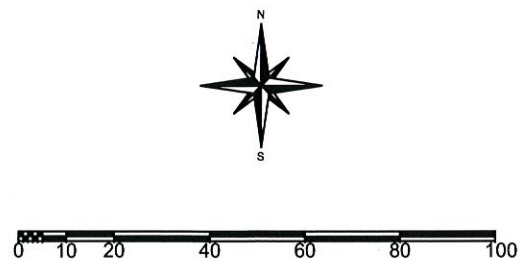
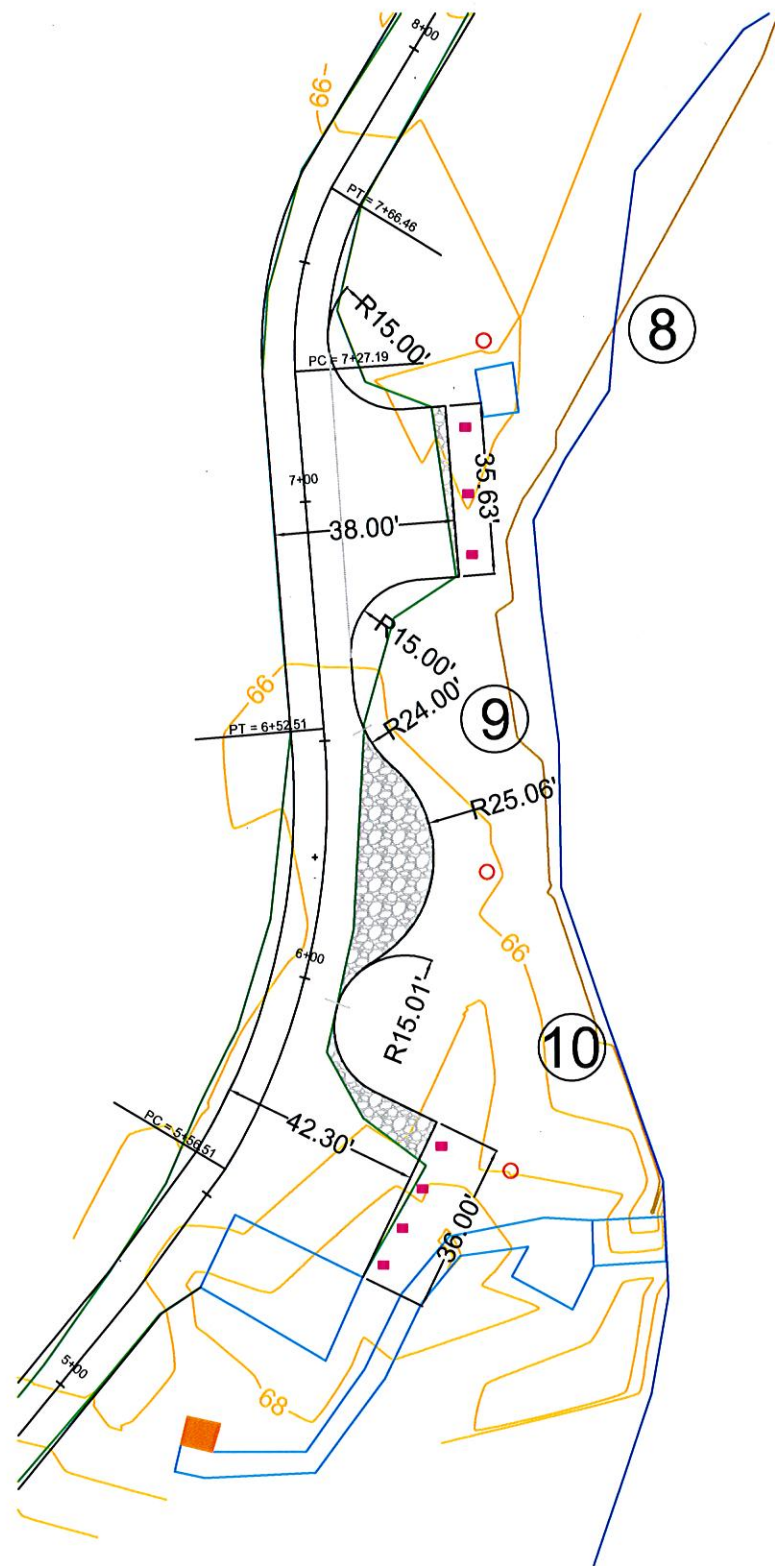


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**Bearpaw Lake FAS Road Improvement
near Havre, MT**



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LEGEND	
	MAJOR CONTOUR (5 FOOT INTERVAL)
	MINOR CONTOUR (1 FOOT INTERVAL)
	ACCESS ROAD
	ACCESS ROAD CENTERLINE
	EXISTING EDGE OF GRAVEL SURFACE
	EXISTING FENCE
	WATERLINE (EST. LAKE ELEVATION)
	NEW CULVERT
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	TYPICAL SECTION B: NEW CAMPSITE ROADS AND PARKING AREAS
	STRAW WATTLE

GENERAL NOTES:

1) REFER TO TYPICAL SECTION A: GRADE AND GRAVEL EXISTING ROADS AND PARKING AREAS ON ALL ROAD AND PARKING SURFACES UNLESS OTHERWISE DESIGNATED.

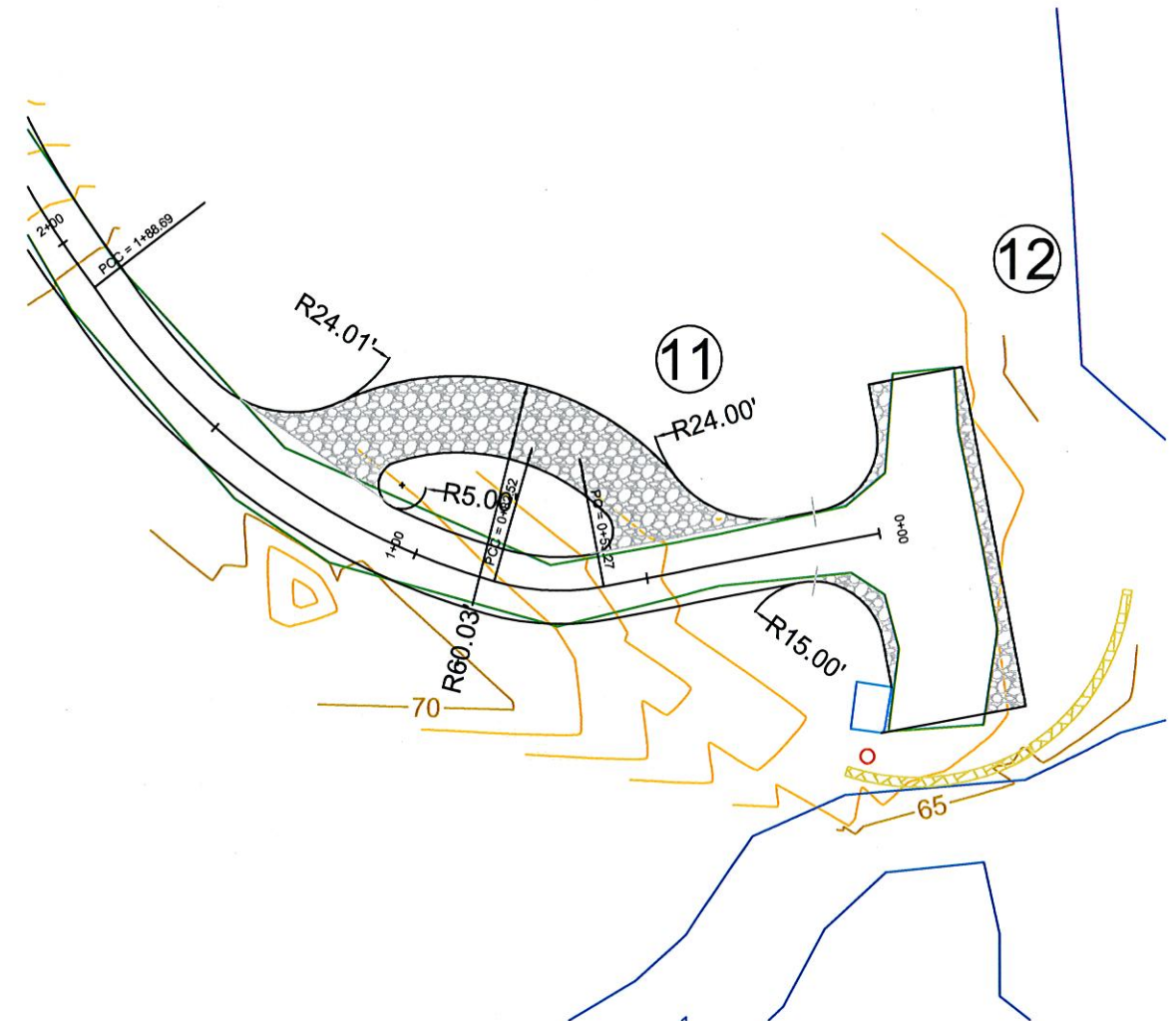
1) CLEAR AND REMOVE TOP SOIL FOR NEW ROAD AND PARKING AREAS. STOCKPILE TOP SOIL FOR LATER USE TO SEED DISTURBED AREAS.

2) TRANSITIONS FROM NEW GRAVELED AREAS TO VEGETATED AREAS SHALL UNIFORM AND CLEARLY FOLLOW THE ALIGNMENT OF THE ROADS AND PARKING LAYOUTS.

3) ALL DISTURBED AREAS SHALL BE SEEDED. SEE SECTION 02936. EXCESS TOP SOIL SHALL BE USED TO REVEGETATE IMACTED AREAS, LEVELED TO MATCH NATURAL GRADES AND SEEDED.

4) PICNIC TABLE PADS SHALL BE CONSTRUCTED OF (4) 4" X 8' TREATED LANDSCAPING TIMBERS, PLACED IN A SQUARE, AND THE INTERIOR FILLED WITH 4" OF CRUSHED TOP SURFACING GRAVEL. EACH TIMBER SHALL BE PINNED DOWN WITH (3) 18" #4 REBAR. LEVEL PICNIC TABLE PAD AREA SUB-GRADE PRIOR TO INSTALLATION. ADDITIONAL TIMBERS MAY BE REQUIRED ON STEEPER SLOPES TO LEVEL THE PICNIC TABLE PAD.

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CAMP SITE 13 AND 14 NOTES:

- 1) Refer to TYPICAL SECTION C: NEW ROAD for improvement of access road and parking.
- 2) Install 20' x 18" HDPE culvert with galvanized steel flare ends at designated location. Confirm location with FWP Engineer before installing
- 3) Additional base course material shall be used to grade access road to camp spurs, and provide minimum one foot coverage over culvert. Material estimates have been included in overall material quanttiy.



LEGEND

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- EXISTING EDGE OF GRAVEL SURFACE
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- WATERLINE (EST. LAKE ELEVATION)
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- PICNIC TABLE PAD
- TYPICAL SECTION B: NEW CAMPSITE ROADS AND PARKING AREAS
- STRAW WATTLE

REFER TO TYPICAL SECTION C: NEW ROAD
STA 0+00 TO STA 4 +60

GENERAL NOTES:

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GENERAL NOTES:

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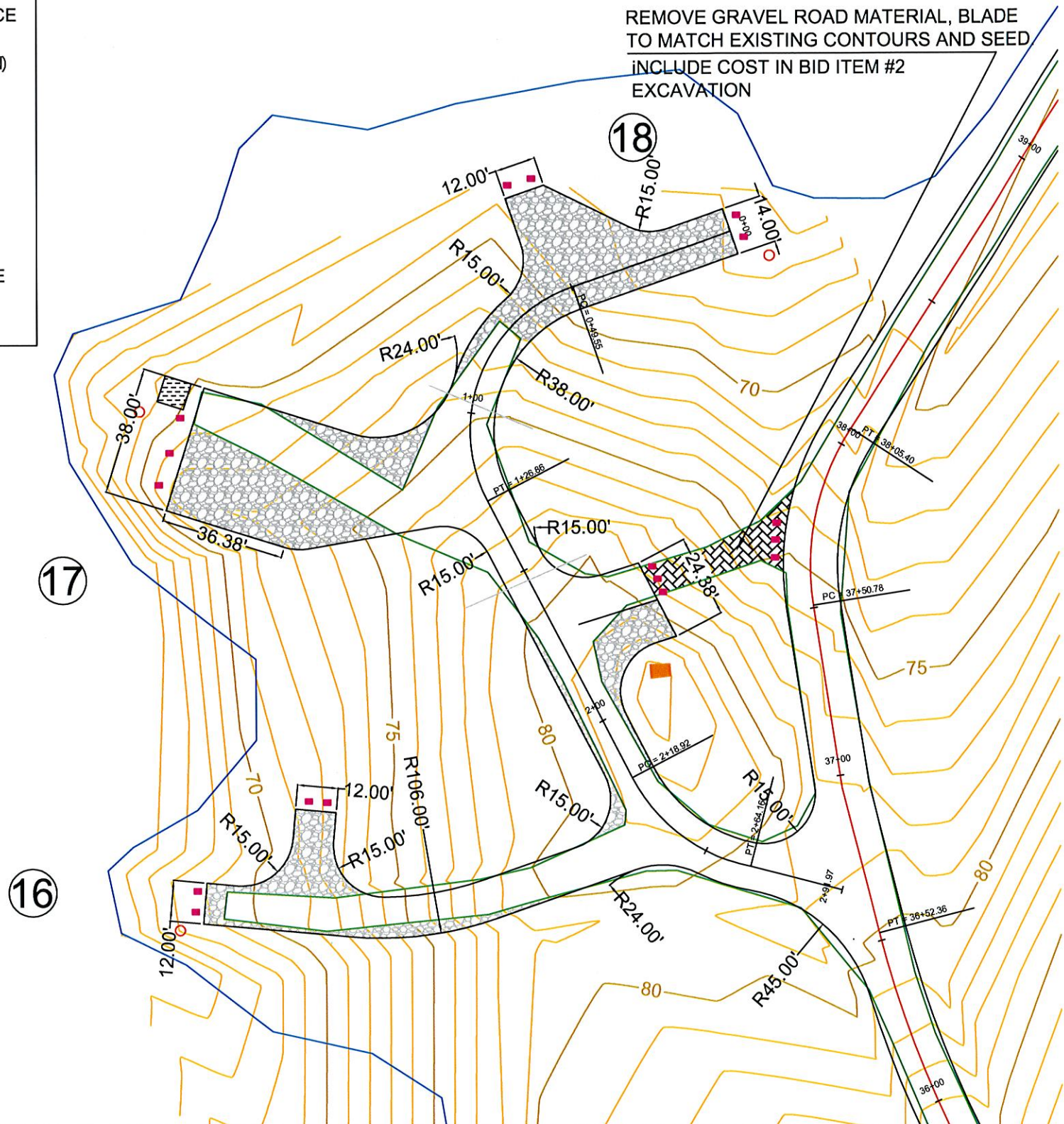
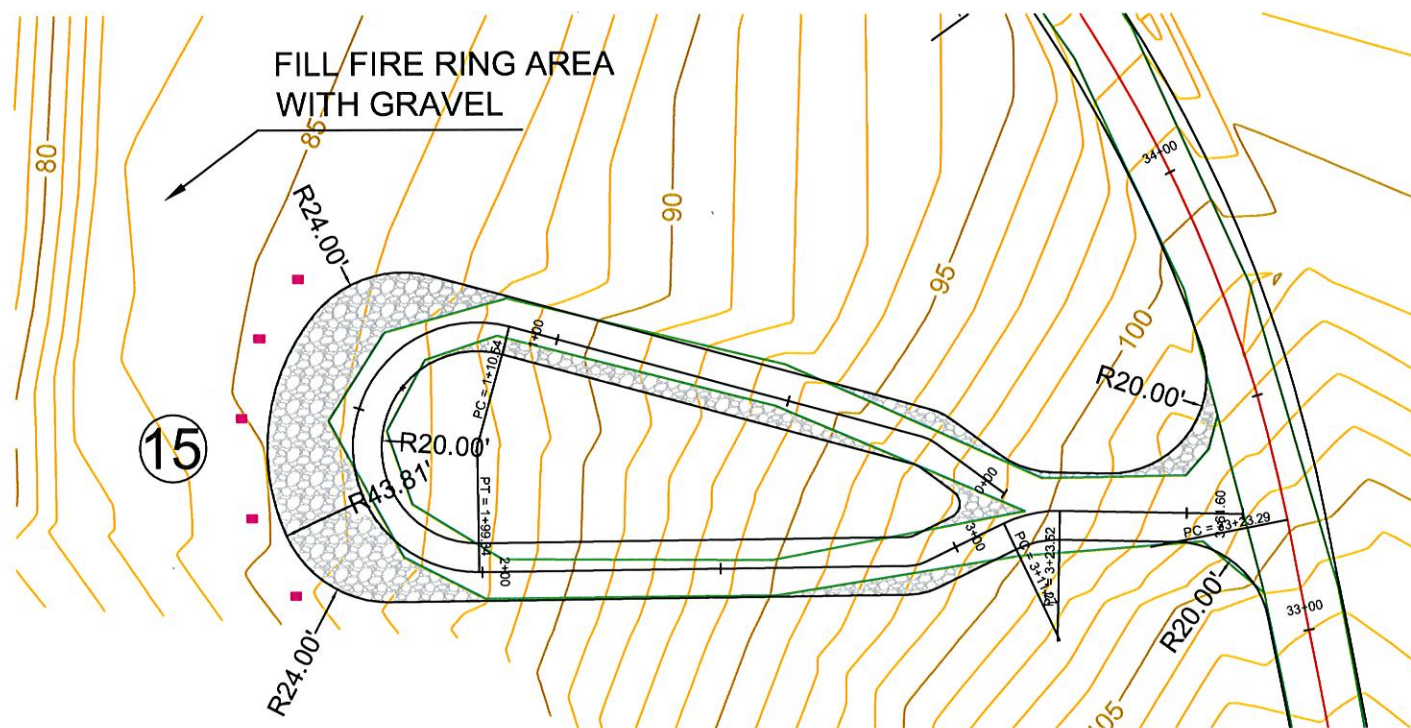
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5) INSTALL BARRIER POSTS AT DESIGNATED LOCATIONS.

LEGEND

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REMOVE GRAVEL ROAD MATERIAL, BLADE TO MATCH EXISTING CONTOURS AND SEED
INCLUDE COST IN BID ITEM #2
EXCAVATION



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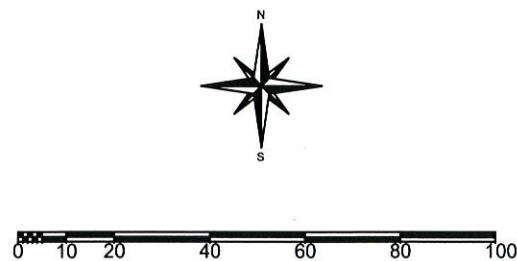


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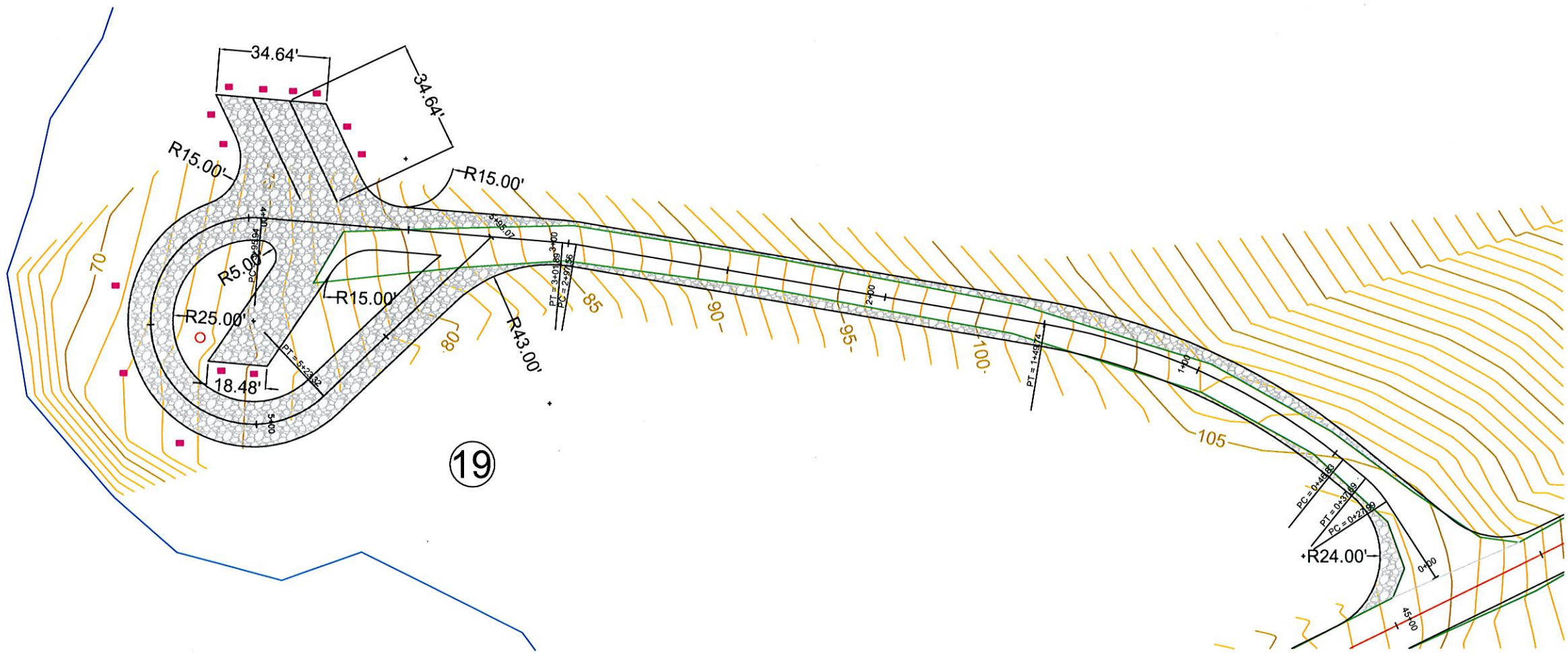
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LEGEND	
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	MINOR CONTOUR (1 FOOT INTERVAL)
	ACCESS ROAD
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	EXISTING EDGE OF GRAVEL SURFACE
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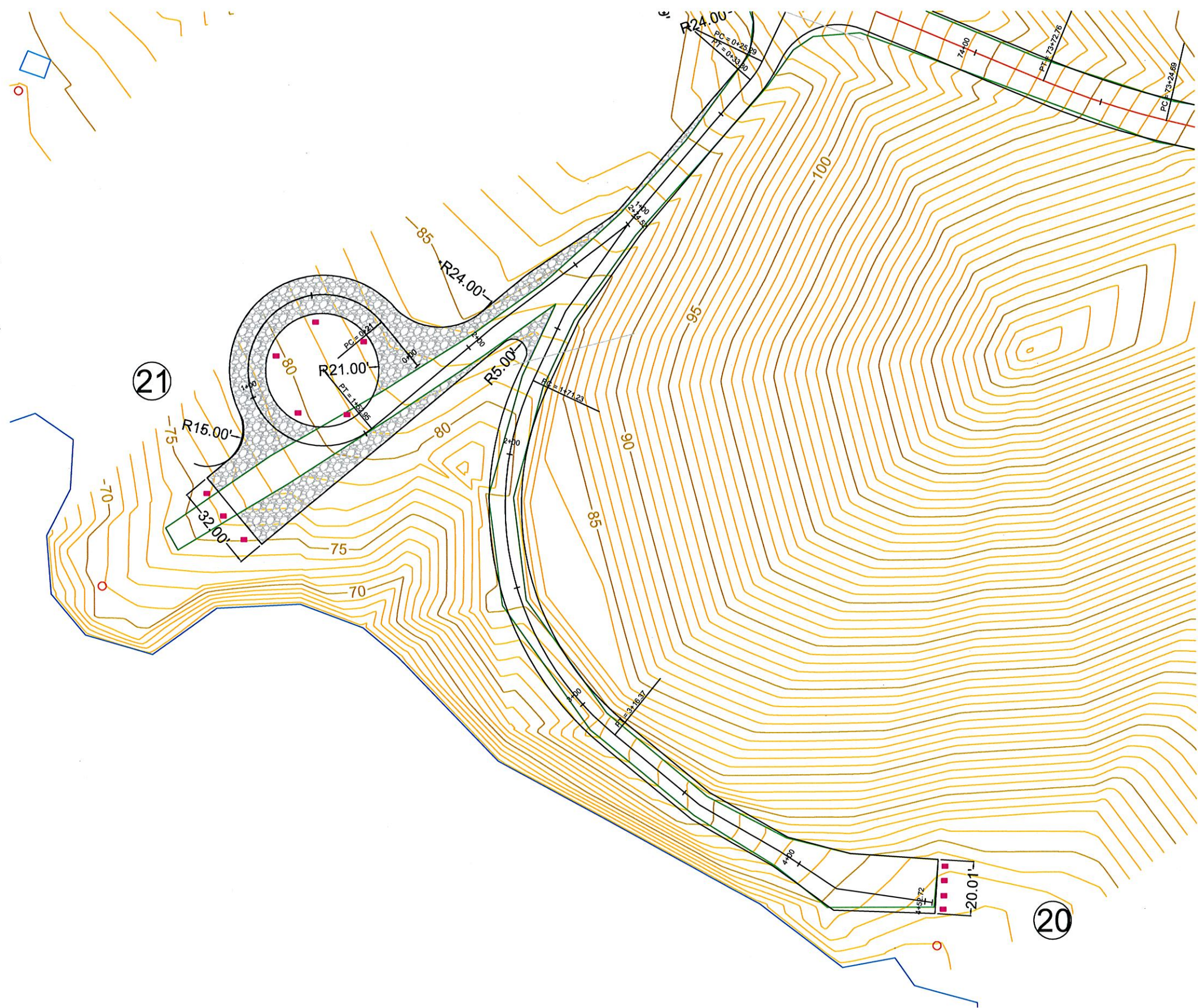


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**Bearpaw Lake FAS Road Improvement
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LEGEND

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- ROADS AND PARKING AREAS
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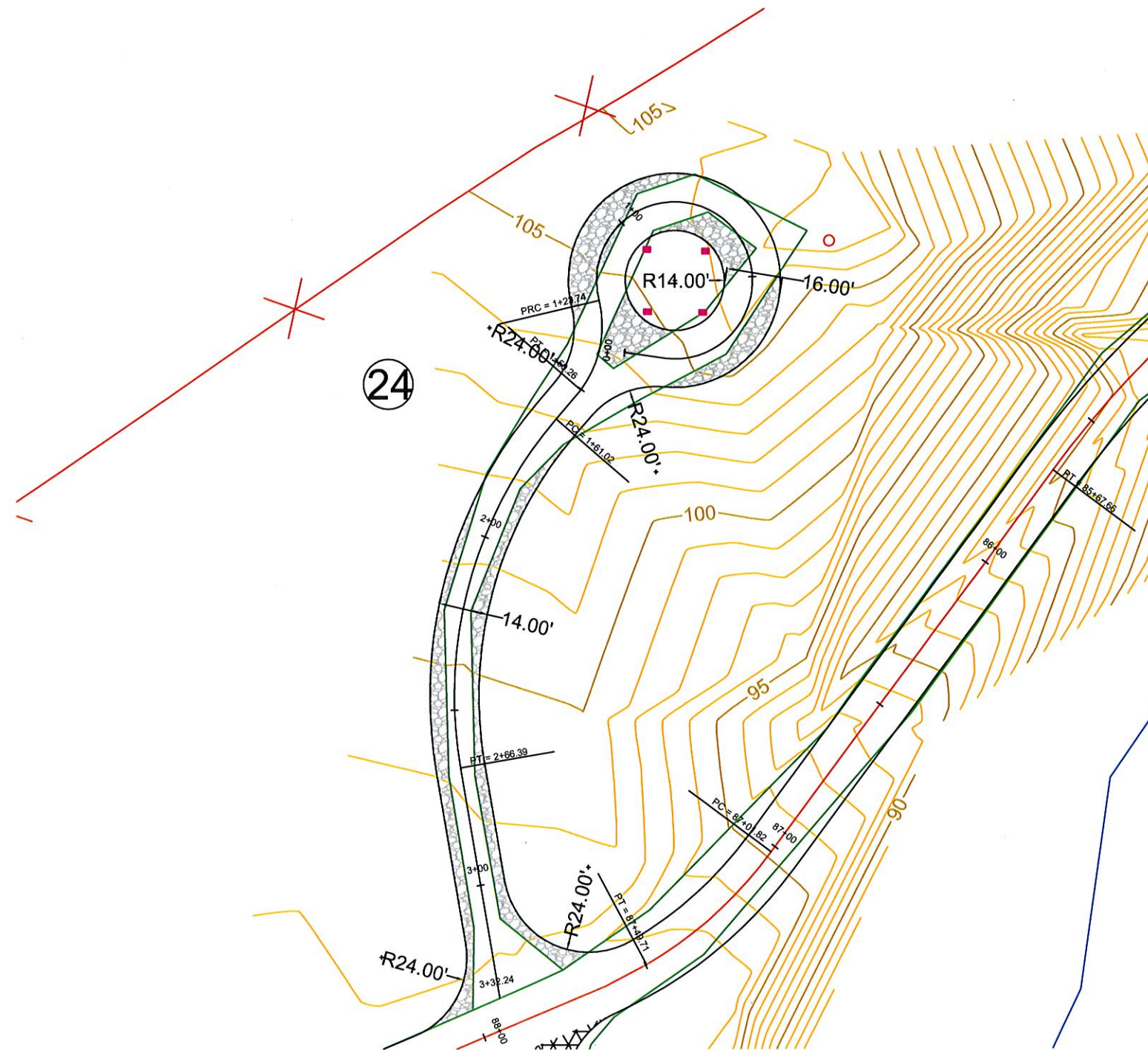


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LEGEND

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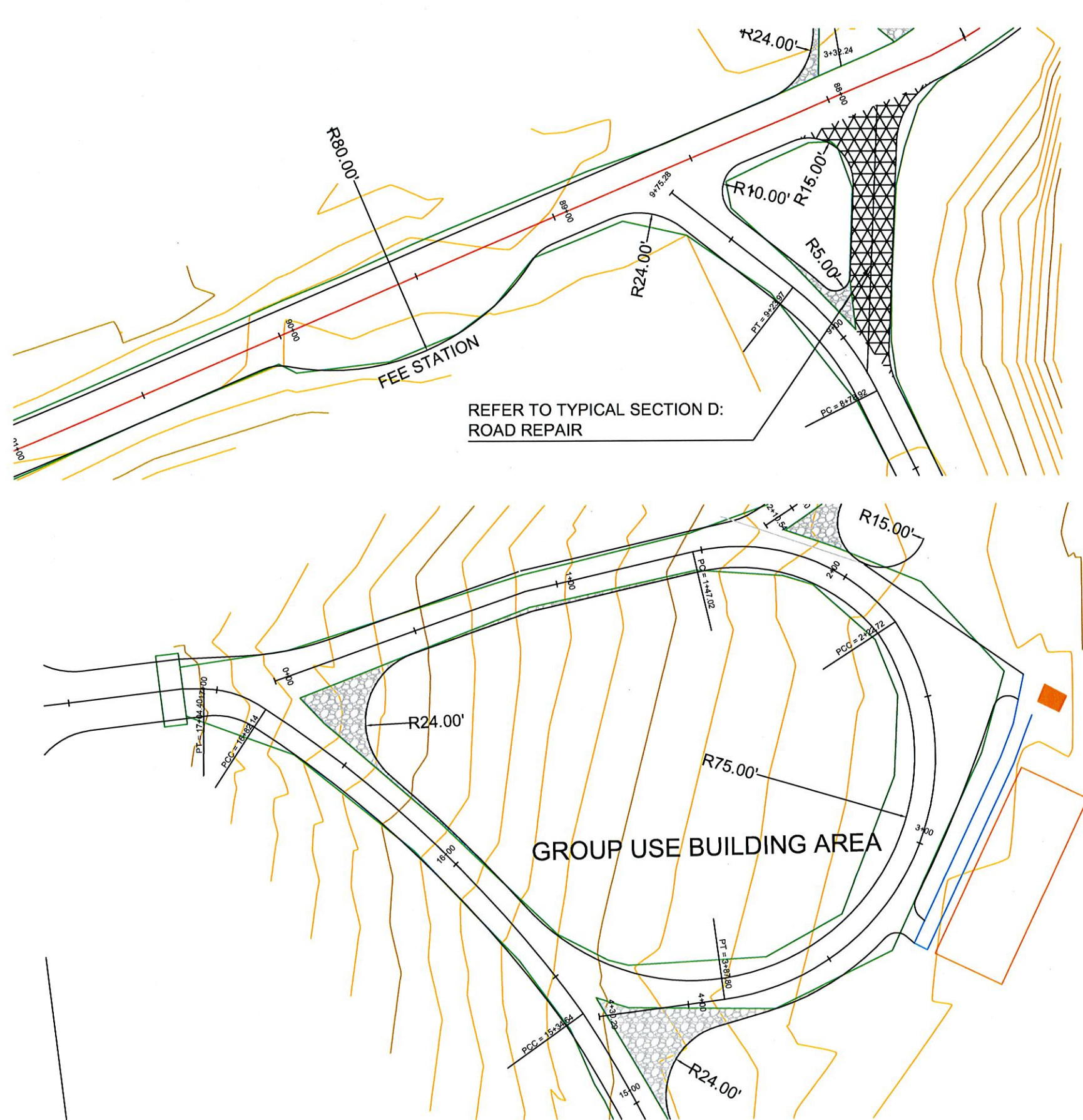


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LEGEND

- MAJOR CONTOUR (5 FOOT INTERVAL)
- MINOR CONTOUR (1 FOOT INTERVAL)
- ACCESS ROAD
- ACCESS ROAD CENTERLINE
- EXISTING EDGE OF GRAVEL SURFACE
- EXISTING FENCE
- WATERLINE (EST. LAKE ELEVATION)
- NEW CULVERT
- CONCRETE SURFACE
- BUILDING
- LATRINE
- FIRE RING
- BARRIER
- CAMP SITE
- PICNIC TABLE PAD
- TYPICAL SECTION B: NEW CAMPSITE
- ROADS AND PARKING AREAS
- STRAW WATTLE

GENERAL NOTES:

- 1) REFER TO TYPICAL SECTION A: GRADE AND GRAVEL EXISTING ROADS AND PARKING AREAS ON ALL ROAD AND PARKING SURFACES UNLESS OTHERWISE DESIGNATED.
- 1) CLEAR AND REMOVE TOP SOIL FOR NEW ROAD AND PARKING AREAS. STOCKPILE TOP SOIL FOR LATER USE TO SEED DISTURBED AREAS.
- 2) TRANSITIONS FROM NEW GRAVELED AREAS TO VEGETATED AREAS SHALL UNIFORM AND CLEARLY FOLLOW THE ALIGNMENT OF THE ROADS AND PARKING LAYOUTS.
- 3) ALL DISTURBED AREAS SHALL BE SEEDED. SEE SECTION 02936. EXCESS TOP SOIL SHALL BE USED TO REVEGETATE IMACTED AREAS, LEVELED TO MATCH NATURAL GRADES AND SEEDED.
- 4) PICNIC TABLE PADS SHALL BE CONSTRUCTED OF (4) 4" X 8' TREATED LANDSCAPING TIMBERS, PLACED IN A SQUARE, AND THE INTERIOR FILLED WITH 4" OF CRUSHED TOP SURFACING GRAVEL. EACH TIMBER SHALL BE PINNED DOWN WITH (3) 18" #4 REBAR. LEVEL PICNIC TABLE PAD AREA SUB-GRADE PRIOR TO INSTALLATION. ADDITIONAL TIMBERS MAY BE REQUIRED ON STEEPER SLOPES TO LEVEL THE PICNIC TABLE PAD.
- 5) INSTALL BARRIER POSTS AT DESIGNATED LOCATIONS.

J. Kevin McDonnell	4.2013				
DRAWN BY:	DATE:	REVISED BY:	DATE:	APPROVED BY:	DATE:
CHECKED BY:	DATE:	APPROVED BY:	DATE:	APPROVED BY:	DATE:



**Montana Fish,
Wildlife & Parks**

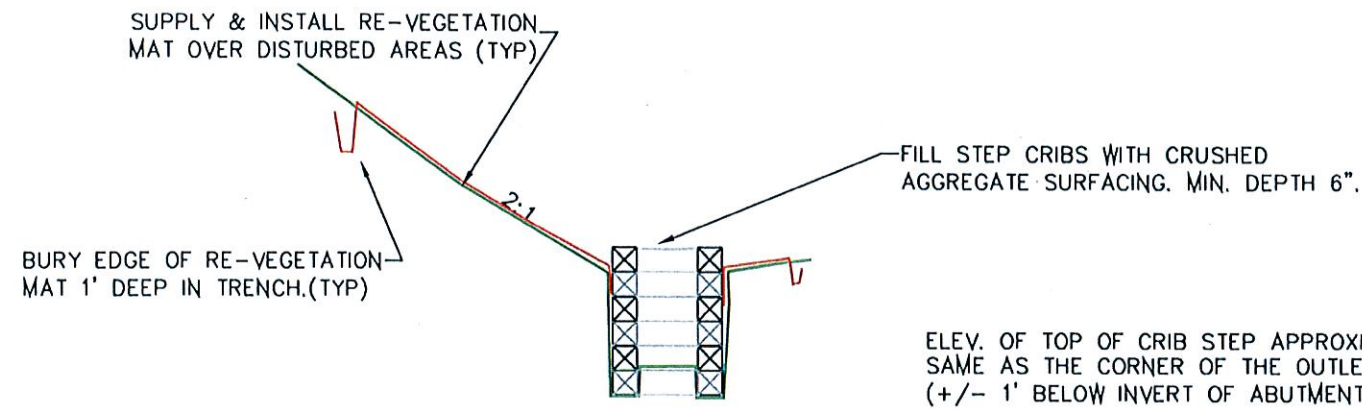
**Bearpaw Lake FAS Road Improvement
near Havre, MT**



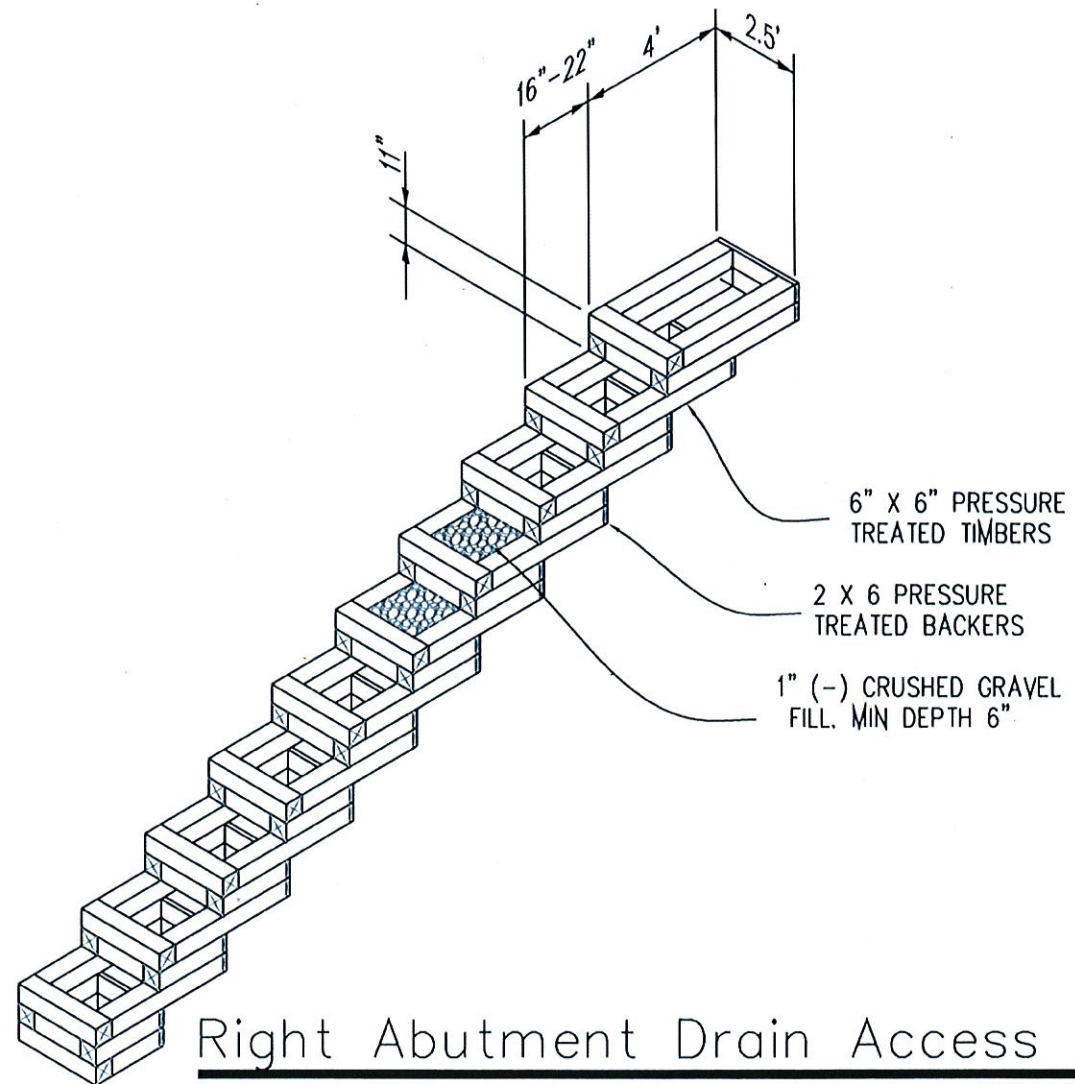
**SHEET: 12
of
12**

ACCESS SECTION AND PROFILE

NO SCALE

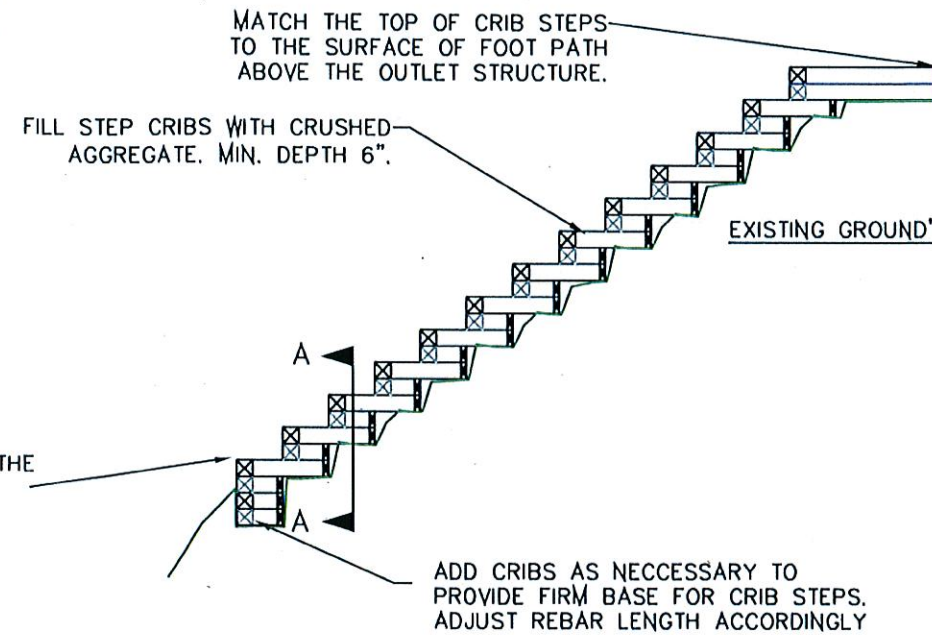


SECTION A-A

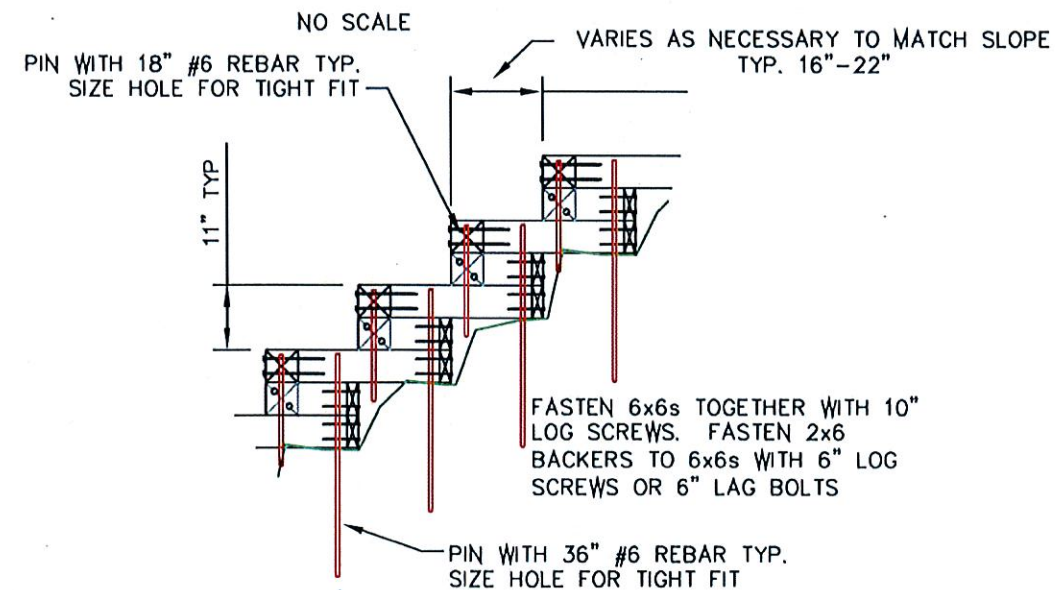


Right Abutment Drain Access Detail

NO SCALE



ACCESS FASTENER DETAIL



FILE NAME	BEARPAW DAM			
CONTRACT NO				
DRAWN 2/21/13 RCM				
CHECK				
APPR.				
ISSUED				
SIZE	FSCM NO	DWG NO	REV	
	-	1		
SCALE	Varies	WEIGHT	SHEET 1 of 1	

SITE PLAN



WASTE AREA FOR ROCK FROM
SPILLWAY OUTFLOW BAR

IF NECESSARY TO PREVENT LOW FLOW SPILLWAY STILLING
BASIN WATER FROM BACKING UP INTO THE OUTLET
SPILLING BASIN REMOVE EXISTING LOOSE ROCK FROM
EAST SIDE OF BAR IN THE OUTFLOW CHANNEL OF
SPILLWAY STILLING BASIN AS DIRECTED BY THE PROJECT
MANAGER.
ROCK TO BE WASTED AS SHOWN ON PLAN OR AS
DIRECTED BY PROJECT MANGER.

APPROXIMATE EDGE OF
WATER AT ORDINARY FLOWS

REMOVE EXISTING LOOSE ROCK & SEDIMENT FROM BAR IN
THE OUTFLOW CHANNEL OF OUTLET STILLING BASIN. DO
NOT EXCAVATE INTO BEDROCK.
BOTTOM ELEVATION OF OUTFLOW CHANNEL TO BE THE
SAME AS THE ELEVATION OF THE INVERT OF THE OUTLET
CONDUIT. MAINTAIN THE ORIGINAL SECTION OF THE
OUTFLOW CHANNEL.
ROCK TO BE WASTED AS SHOWN ON PLAN OR AS
DIRECTED BY PROJECT MANGER.
RAKE, FERTILIZE & RESEED ALL AREAS DISTURBED BY
CONTRACTOR'S OPERATIONS.

3rd PRIORITY WASTE
AREA IF NEEDED

REMOVE ROCK BAR FROM
OUTLET CHANNEL

1st PRIORITY WASTE AREA,
LARGEST SORTED ROCK

2nd PRIORITY WASTE AREA,
SMALLER ROCK & GRAVEL
INFILL ON EXISTING RIPRAP

RT. ABUTMENT DRAIN

PROPOSED CRIB STEPS

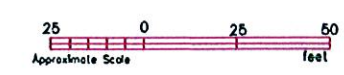
OUTLET INV. EL. 3547.30'

EXISTING BARB WIRE FENCE,
REMOVE & REPLACE AS NECESSARY

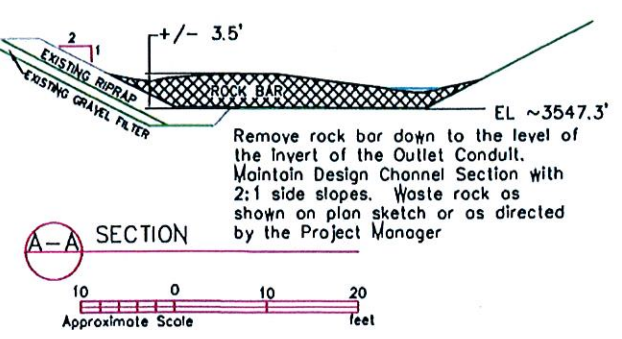
"JERSEY" BARRIER WALL

SLUMP AREA
DH-101(DAMAGED)

BEARPAW LAKE



ASSIST DNRC WITH REPAIR/
ABANDONMENT OF MONITORING WELL



FILE NAME	Bear Paw Dam			
CONTRACT NO	DRAWN 2-7-13 RCM			
CHECK	APPR.			
ISSUED	Rock Bar Removal MDNRC-Dam Rehab Section			
SIZE	FSCM NO	DWG NO	REV	
	-	1	1	
SCALE	Varies	WEIGHT	SHEET 1 of 1	